A newsletter of the
LTAP
Issue Number 55, Summer 1997

Bulletin

Partnering in Washington's Small Towns

By Brent Rasmussen PE, and George Crommes, PE

Forward

If only we had enough money to do it right! How many times have we heard this? Perhaps there is a way of extending the funds of one community by partnering with other sources of funds and thereby getting "more bang for the buck."

Three small towns in eastern Washington were contacted by Brent Rasmussen, the TransAid Regional Engineer for WSDOT Eastern Region. The purpose was to work with these towns in pursuing joint funded, joint development projects for their downtown cores and maximizing the amount of work that could be attained by keying on work planned by WSDOT in their respective communities.

The Colfax Joint Development Project

Colfax, the county seat for Whitman County, has a population of 2,800 people. About three years ago, the community leaders of Colfax suggested rebuilding Main Street (SR195) through the city core instead of a bypass proposed by the state. WSDOT programmed $3.0 million for the project which only took care of the roadway between the curb faces. The city leaders thought that this was a good time for improving the sidewalks and street furniture also. A bond issue for $300,000 was passed by the city citizens with a 70 percent favorable vote. The city also applied for money from TIB's small city account and received $450,000. An additional $735,000 was obtained from the STP competitive fund. The city contributed $60,000 from their existing coffers.

A consultant was hired to design the portions of the street from the back of curbs to building faces. WSDOT designed the rehabilitation of the street proper and will administer the project. The city leaders, WSDOT, and the consultant all worked cooperatively together on the $4.5 million project.

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T2

The Northwest Technology Transfer Center
TransAid-WSDOT

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Upon completion, the city's downtown will have an entirely new look. The business community will have new sidewalks, new landscaping, a user friendly and more prosperous looking town. WSDOT will have a new 6-foot wider roadway and will have corrected some transportation problems. In addition, new waterlines will be in place. The project is scheduled for bidding in the fall of 1997.

The Newport Couplet

This project includes the rebuilding of all the streets within the entire downtown business district of Newport (population 1,840). In the town, SR 2 and SR 20 will be rebuilt along with new sidewalks, street lighting, landscaping, surface drainage mitigation, and new waterlines. Everything will be new between building faces. This project will fix traffic problems for many years, it will revitalize the downtown area and the new couplet will allow space for future commercial development and will consolidate new growth.

Three years ago, a committee was formed that wanted to rebuild all the sidewalks in the downtown business area. A consultant was hired and efforts were initiated to pass a $1.0 million LID. The city wanted to add the sidewalk improvements to a WSDOT paving project scheduled for the area. City officials were told that it was too late to add the work onto WSDOT's contract. Hence, TransAid Engineer Rasmussen and city officials proceeded to work on rescheduling the WSDOT project until the city's LID passed.

When it appeared that a $1.0 million levy would not pass, Rasmussen suggested that the LID be reduced to $500,000 and for the city to leverage other funds. The LID passed by a 70 percent majority and the city administrator went after other funds. The final funding package included:

- $830,000 WSDOT
- $895,000 STP Competitive
- $500,000 LID
- $20,000 County STP funds
- $20,000 City funds
- $250,000 from the USDA Forest Service Rural Development funds
- $750,000 from the state's Public Works Trust Fund (a grant)
- $200,000 from TransAid for the railroad crossing
- $135,000 from TIB

Attempts are being made to get another $450,000 from TIB's small city account. If successful the total project will be just over $4.0 million.

The project has almost 100 percent community support. Design has started and construction is expected to begin early in 1998.

When completed, the business community will have new sidewalks, new landscaping, a more user friendly walkable community and a revitalized downtown. WSDOT will have new roadways and correction of transportation problems. Newport may attract new business and opportunities.

Uniontown Enhancement Project

This project started as an overlay project on SR 195 through the small town of Uniontown (population 305). The city clerk expressed interest in a multifunded project with WSDOT. A five-block area was in need of new sidewalks and curbs. Rasmussen worked with the city clerk in a successful application for $120,000 enhancement funds for landscaping, sidewalks, and water runoff mitigation.

WSDOT agreed to some pavement grinding, new asphalt, new curbs and the handling of project award and construction supervision. The city consultant designed the area between the curbs and the building faces, and a new water system. Working closely with WSDOT, one set of plans is to be used for all of the work.

Since WSDOT was so successful working with the city, WSDOT was asked to partner with the town in building a rest room facility in their park. This facility could be used by the traveling public. WSDOT agreed to provide $6,000 for the rest room with the town providing $6,000 and all the labor.

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The funding of the project for the town came from a variety of sources;

- $84,000 County STP funds
- $120,000 Enhancement Program funds
- $31,840 TIB match program
- $5,400 Property owners
- $5,000 Oil surcharge funds
- $51,000 City funds

WSDOT contributed new curbs, asphalt overlay, and extra grinding as part of its original eight-mile project through the town.

Bids have been opened and construction will start soon.

Some Key Things That Make These Partnerships Work

1. Competitive funds. Without people working together to fund a project everyone would do their own thing.
2. Leadership of a major player. For example Jerry Lenzi of WSDOT and the knowledge of WSDOT and at local agencies staff has been essential.
3. People in the community who are willing to put time and effort into the project.
4. Someone at the local jurisdiction with a vision, a direction, and knowing what they want.

Without these four ingredients nothing would get done. All four ingredients must exist!!!!

Director's Column

Check out our new home page on the Internet! We have completely remodeled and updated this additional source of information. Just a click of the mouse (not the animal) will open many doors for you. Following are some of the major offerings on the Northwest T^2 Center's home page. We will try to update this information regularly.

1. **The Local Technical Assistance Program (LTAP), of which the T^2 Center is part and includes the other T^2 Centers and FHWA's activities in T^2.**
2. **A new college program — Associate of Technical Arts in Public Works (ATAPW) which the T^2 Center helped to create in 1996-97.**
3. **Training opportunities available to you from us, other pubic agencies, the private sector, and universities, as well as a listing of major conferences and meetings.**
4. **Our latest T2 Newsletter, the "Bulletin."**
5. **Our T2 videotape catalog with topics that a public agency can borrow.**
6. **Some generic computer software awaiting your downloading.**
7. **Many critical links to other resources from national associations, other governmental agencies, and others involved in transportation.**
8. **WSDOT's Research Office linkage which has links to national research programs.**
9. **WSDOT's library including "what's new" in numerous disciplines of transportation.**
10. **General education links to prominent universities, UW, WSU, and others.**
11. **Our retired professional list of people that have expressed an interest in part-time or full-time jobs with agencies in need of help.**
12. **The CEStudent Referral Program we setup to provide a match-up for civil engineering students with agencies needing civil engineering help during the summer.**

If you have access to the Net, give us a look at, http://www.wsdot.wa.gov

When WSDOT's home page appears click on TransAid and then on T^2.

George

Earthquake Preparedness Home Checklist

1. Place beds so they are not:
   - Next to large windows.
   - Right below hanging lights.
   - Right below heavy mirrors.
   - Right below framed pictures.
   - Right below shelves with lots of things that can fall.
2. Replace heavy lamps on bed tables with light nonbreakable lamps.
3. Change hanging plants from heavy pots into lighter pots.
4. Use closed hooks on hanging plants, lamps, etc.
5. Make sure hooks (hanging plants, lamps, etc.) are attached to studs.
6 Remove all heavy objects from high shelves.
7. Remove all breakable things from high shelves.
8. Replace latches, such as magnetic touch latches on cabinets, with latches that will hold during an earthquake.
9. Take glass bottles out of medicine cabinets and put on lower shelves. If there are small children around, make sure to use childproof latches when moving to lower shelves.
10. Remove glass containers that are around the bathtub.
11. Move materials that can easily catch fire so they are not close to heat sources.
12. Attach water heater to the studs of the nearest wall.
13. Move heavy objects away from exit routes in your house.
14. Block wheeled objects so they cannot roll.
15. Attach tall heavy furniture such as bookshelves to studs in walls.
16. Use flexible connectors where lines connect to appliances such as stoves, water heaters, and dryers.
17. Attach heavy appliances such as refrigerators to studs in walls.
18. Brace outside chimneys.
19. Nail plywood to ceiling joists to protect people from chimney bricks that could fall through the ceiling.
20. Fasten heavy mirrors to walls.
21. Fasten heavy pictures to walls.
22. Brace air conditioners.
23. Check roof tiles — make sure they are secure.
24. Bolt house to the foundation.
25. Remove dead or diseased tree limbs that could fall on the house.

For more information, contact your local emergency management office, or call the state's Emergency Management office 1-800-562-6108.

(Source: Washington State Military Department, Emergency Management Division.)

What is Superpave

By Bob Briggs

The Superpave (SUperior PERforming Asphalt PAVEments) system was developed during the SHRP (Strategic Highway Research Program) to give highway engineers and contractors the tools they need to design asphalt pavements that will perform better under the extremes of temperature and heavy traffic loads.

Asphalt pavements account for more than 90 percent of all paved highways in the United States, and annual expenditures for asphalt pavements top $10 billion. If the asphalt pavements can be designed to last longer, and with less maintenance, we stand to reap substantial benefits.

The Superpave system primarily addresses three major types of pavement distress: pavement deformation or rutting, low temperature cracking, and fatigue cracking. The system consists of three interrelated elements: asphalt binder selection and specification, the volumetric mix design and analysis system, and mix analysis tests and a performance prediction system that includes computer software, weather database, and environmental and performance models.

The Superpave binder specification is a performance-based specification. It classifies binders into performance grades (PG), based on a range of climates and pavement temperatures. The first number indicates the high-temperature grade; the second number indicates the low-temperature grade. For example, a binder classified PG58-22 would meet the required physical properties at pavement temperatures as high as 58°C and as low as –22°C. The mix designer selects a Superpave binder based on the climate in which the pavement will serve and the traffic it will bear.

In Washington State we have predetermined that we will primarily be using three grades of binders with some adjustments being made for traffic. The three primary grades are:

- Western Washington, PG 58-22
- Northeastern Washington, PG 58-34
- Southeastern Washington, PG 64-28

The physical properties required for the binders are the same for all grades, but the temperature at which those properties must be attained is determined by the specific climatic conditions at the paving location. There are three new tests used to measure the physical properties of the Superpave binders.

- The dynamic shear rheometer test measures the binder stiffness and phase angles at intermediate and high temperatures which indicates the binders ability to withstand permanent deformation (which is often evidenced as rutting in the pavements) and fatigue cracking.
- The bending beam rheometer test measures the low-temperature stiffness of the binder which is used to predict low temperature cracking problems.
- The direct tension test measures the low-temperature tensile and fracture properties which provides additional information on how the binder will perform at low temperatures.

The Superpave mix design system is based on volumetric proportioning of the asphalt and aggregate materials which are compacted in the laboratory using the Superpave gyratory; compactor. The gyratorys compactor kneads the mixture to fabricate test specimens by simulating traffic loading and construction compaction. The level or amount of compaction is dependent on the environmental conditions and traffic levels expected at the job site.

These fabricated specimens are used to determine the volumetric properties (air voids, voids in the mineral aggregate, and voids filled with asphalt) of Superpave mixes. These properties, measured in the laboratory, indicate how well the mixture will perform in the field. The gyratory compactor is also well-suited for quality control/quality assurance at the job site and to verify that the delivered asphalt mix the meets the volumetric specifications.

The superpave mix design system also includes specifications and procedures for aggregate quality tests and, aggregate angularity, as well as gradation requirements to insure that the mixture has a high degree of internal

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friction and thus high shear strength. The design goal is for a strong aggregate skeleton that will resist rutting, yet include enough asphalt and voids to improve the durability of the mix.

The Superpave system also includes mix analysis procedures that predict how well a mix will perform in the field. These new procedures are intended to provide additional information on asphalt mixes that will be placed in pavements with very high traffic volumes and loads. Two new, sophisticated pieces of laboratory equipment, the Superpave shear tester and the indirect tensile tester, are used to measure specific engineering properties of laboratory compacted asphalt mixes. The test results are then entered into software models that tell how much traffic the pavement will carry, or how much time will elapse, before a certain level of rutting, fatigue cracking, or low temperature cracking develops.

The Washington State Department of Transportation is in the process of purchasing the necessary equipment to target a January 1999 implementation of the Superpave performance grade binders and January 2000 for implementing the Superpave volumetric mix design system.•

(Bob Briggs is the Bituminous Implementation Engineer at WSDOT's Materials Lab and is responsible for Superpave for WSDOT.)

Memo

Idaho Asphalt Conference
October 23, 1997
University Inn-
Best Western
Moscow, Idaho

Tentative program includes emulsion mixes; patching and crack sealings or chip seals in urban area; superpave; anti-stripping additives with time for questions from the audience.

Technical questions?

Call Dwayne Winn, ITD
at (208) 334-8450

Preregister?

Call UI at 1-800-884-3246

Registration fee is $60

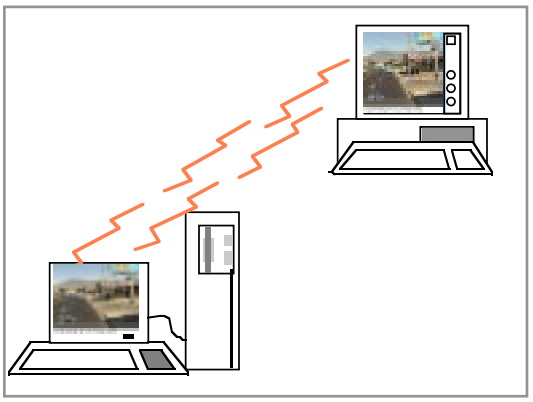
Is *SRview* In Your Future?

By Hans Cregg

SRview — short for State Route View — is application software used to collect, store, and view images. Once collected, these images become part of a database stored on a CD disk, where they can be instantly accessed and viewed by anyone with a CD drive-equipped computer. Once in the computer, these images can be inserted into a document or E-mailed to another location.

Document Insertion

E-Mail



TransAid, the WSDOT Service Center which serves local agencies, sees SRview as a great imaging utility with potentially numerous local applications that need to be explored. The catalyst in this exploration process is, of course, you. Your ideas, imagination and vision will be instrumental in molding SRview to meet local needs.

Credit for the concept of SRview and its development go to the Transportation Data Office. Currently, WSDOT uses SRview to collect roadway images of the state's highway system.

How Did A Great Idea Like This Come About?

To satisfy maintenance, risk management, and engineering requirements, the WSDOT videotapes the state's highway system once every two years — a task that consumes literally hundreds of tapes. When coupled with the additional burden of tape duplication and storage, videotape falls far short of being the ideal imaging medium. We needed a drastic reduction of our reliance on videotapes.

To find alternatives, we held a brainstorming session last year in which we sought to explore ways to reduce our total dependence on videotape and develop a better, more flexible, imaging product. Hence the department came up with SRview.

The SRview system uses only standard hardware components. The computer, camera, DMI, and associated equipment are common retail items that can be readily purchased from appropriate retailers. Total system cost, minus GPS equipment, is about $15,000. The software to run the system was developed by WSDOT and is free to local agencies.

How Does SRview Work?

As the video van travels down the highway, it continuously videotapes the route. A Distance Measuring Instrument (DMI) superimposes milepost information on the videotape. The DMI imprints its data on the tape every 52.8 feet (or 1/100 of a mile).

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Controlled-Density Backfill

By Gary Hunter, Project Engineer, FHWA

When pipe trenches must be backfilled quickly, or when cooperating agencies must be unequivocally assured that backfill will not settle over the years, controlled-density backfill can provide a simple solution.

Controlled-density backfill was developed several years ago by the Washington State Department of Transportation (WSDOT). Early incarnations of the backfill were mixtures of fly ash, aggregate, and water. The backfill needed virtually no compaction, so it could be placed easily and quickly in trenches. It required many hours to set up, however, so backfilled trenches had to be protected overnight by flaggers.

Because the backfill took so long to set up, and because fly ash is not readily available outside Washington's largest cities, WSDOT began to experiment with Portland cement in place of fly ash. The result is a product that can be readily produced by any ready-mix supplier.

For one cubic yard of controlled-density backfill, WSDOT specifies:

- 1,750 lbs. Sand (Fine Aggregate Class 1 or 2)
- 1,750 lbs. Pea Gravel (Grading No. 6)
- 230 lbs. Water
- 141 lbs. Cement
- 6 ozs. ± Water Reducing Agent Per 100 lbs. of Cement

Controlled-density backfill can be placed as quickly as ready-mix trucks can deliver it. If the worksite has sufficient room, two or more ready-mix trucks can place backfill simultaneously. Minimal labor and no equipment are required.

As placement begins, backfill should be worked beneath the pipe haunches. After the haunches have been addressed, the remaining backfill can be placed en masse, rather than in lifts as conventional backfill must be.

As the backfill is brought up to grade, it can be struck off flush with the adjacent roadway. Traffic can pass over the backfill as soon as it has acquired its initial set, which may require about three hours. If traffic must use the road immediately, the trench should be plated. With plating, the road can be opened to traffic in a third of the time that conventional backfilling — with its time-consuming compaction — would require.

When it sets up, controlled-density backfill becomes a single solid mass. It will exhibit virtually no settling. Despite this, it can be easily excavated by a backhoe, or by a determined laborer with a hand-shovel.

The surface of the backfill will ravel under heavy traffic. If the road is busy and paving is more than a few days in the future, then a temporary patch of cold mix may be necessary.

In the state of Washington, WSDOT has become particularly concerned about settlement of trench backfill. Some regions of WSDOT now request that controlled-density backfill be used for all pipe crossings beneath state routes.

The backfill material is expensive. At a remote project, it can cost more than forty dollars per cubic yard. This cost is partly offset by elimination of the labor and equipment which would otherwise be required to place and compact each lift of conventional backfill.

On a dollar-for-dollar basis, controlled-density backfill cannot compete with conventional backfill; but if a road must be opened quickly to traffic, or if concerns about settlement must be addressed, then controlled-density backfill may be worth the extra cost.•

(Source: Reprinted with permission from Gary Hunter, Project Engineer, Western Federal Land Highway Division. "Technology Development News" November 1996.)

Comings and Goings at Your T2 Center

Retired Professionals Program

The Retired Professionals Program is a tool that local agencies can use to find individuals with public works experience to fill short-term needs. These retired professional and technical personnel are an excellent resource for an agency who my need an employee with specific expertise or for an agency with an inadequate number of permanent staff to complete its work.

Retired, or soon to be retired, individuals with public works experience can become part of this program by contacting the T2 Center at 1-800-973-4496 or (360) 705-7477. Interested individuals will be sent an information sheet that they will need to fill out and return to the T2 Center. This information is entered into our database and then a draft copy is returned to the individual for approval of the contents. After approval is received, the individuals information can than be sent out to requesting parties.

Agencies requesting a listing of individuals can contact the T2 Center at either of the above numbers or they can look at out database on the Internet (only those individuals who give approval will have their information made available on the Internet). This information is available via WSDOT's home page. Go to http://www.wsdot.wa.gov and then click on TransAid. From here click on T2 and then on Retired Professionals.•

Opportunities for Summer Employment Provided to Civil Engineering Students

This spring, the T2 Center staff continued its Student Summer Employment Program. Letters were sent to northwest colleges with civil engineering programs. Any student interested in summer employment could send the Center a complete form. Similarly, letters and forms were sent to local agencies that wanted to hire civil engineering students for the summer. Upon response from a student and an agency, the Center staff provided various agencies with the student information so that the agency personnel could contact the student directly for summer employment. Over 40 civil engineering students responded as well as over 20 agencies. Most responses from the students were from community colleges in the state.•

SHRP Workshops Spearheaded

A couple of products of the Strategic Highway Research Program that have great potential for application are two workshops. These one day workshops, Preventive Maintenance Treatments and Innovative Materials, were first held in Washington by the T2 Center. Two classes of each course were held June 30-July 3, one set in Spokane and one set in Tacoma. All classes were well attended and highly rated by the participants. With the training materials, staff can plan to instruct the classes themselves throughout the state to our many local agency customers.•

ATAPW Publicity Extended

The recently developed Associate of Technical Arts in Public Works degree program got a boost in July with the completion of a brochure by South Puget Sound Community College. The T2 Director worked with the administration of SPSCC in finalizing a student brochure for the new program. Another brochure was previously developed by the T2 Center and widely distributed throughout the state. The new brochure by SPSCC was designed specifically for entry level students and includes information about SPSCC in addition to the promotion of the new two-year degree ATAPW program.•

Spring '97 Roadshow Records Broken

A new record was set by John Easley, the T2 Center Roadshow Trainer this spring. John provided 100 training sessions throughout the state at local agency sites. Through extra effort and traveling in excess of 12,000 miles in less than three months, John provided an average of three to four hours of informal training at each session. Over 1,100 people of 101 agencies were trained. 97 percent of these people rated their roadshow session excellent or good. The T2 Center Roadshows, since 1985, have been highly receive by the Center's customers each spring and fall when training is taken directly to the customer.•

Free Publications From Your T2 Center

For Washington recipients only.

Name _____

Agency _____

Address _____

City and Zip _____

Phone _____

Check those items you would like to order.

___ Current Application and Successful Implementation of Local Agency Pavement Management in the United States, FHWA, 1997

___ Traffic Conflict Techniques for Safety and Operations — Observers Manual, FHWA, 1989

___ Scrap Tire Utilization Technologies, NAPA

___ State-of-the-Art Survey of Flexible Pavement Crack Sealing Procedures in the United States, CRREL, 1992

___ Maintenance of Aggregate and Earth Roads, NWT2 Center (1994 reprint)

___ International State-of-the-Art Colloquium on Low-Temperature Asphalt Pavement Cracking, CRREL

___ The Engineer's Pothole Repair Guide, CRREL

___ Geotextile Selection and Installation Manual for Rural Unpaved Roads, FHWA

___ Municipal Strategies to Increase Pedestrian Travel, Draft 1994, Rhys Roth, Energy Outreach Center

___ Guide to Safety Features for Local Roads and Streets, FHWA, 1992

___ Family Emergency Preparedness Plan, American Red Cross, et al.

___ More Than Asphalt Concrete and Steel, FHWA

___ Fish Passage Thru Culverts, USDA, FHWA, 1990

___ Local Low Volume Roads and Streets, ASCE, 1992

___ Snow Fence Guide, SHRP

___ The Superpave System – New Tools for Designing and Building More Durable Asphalt Pavements, FHWA

___ A Guide to the Federal-Aid Highway Emergency Relief Program, USDOT, June 1995

___ Asphalt Seal Coats, T2 WSDOT

___ Pothole Primer — A Public Administrative Guide, CRREL, 1989

___ Manual of Practice for an Effective Anti-Icing Program, FHWA, 1996

___ A Guidebook for Residential Traffic Management, NWT2 Center, 1994

___ A Guide for Student Pedestrian Safety, KJS, 1996

___ A Guide for Local Agency Pavement Managers, NWT2 Center, 1994

___ Local Agency Pavement Management Application Guide, NWT2 Center, 1997

Workbooks and Handouts From T^2 Center Workshops

___ Handbook for Walkable Communities, by Dan Burden and Michael Wallwork
From the workshop "Walkable Communities: Designing for Pedestrians"

___ Traffic Calming: A Guide to Street Sharing
From the workshop "Walkable Communities: Designing for Pedestrians"

___ Planning, Design, and Maintenance of Pedestrian Facilities, FHWA, 1989

Self-Study Guides

The following noncredit self-study guides are available through WSDOT Staff Development and can be obtained from the T^2 Center. We will send an invoice with the books.

___ Technical Mathematics I, $20

___ Technical Mathematics II, $20

___ Contract Plans Reading, $25

___ Basic Surveying, $20

Video

___ Walkable Communities: Designing for Pedestrians
Videotape of the class by Dan Burden. Four tapes, 5.5 hours. Available for purchase ($75) or can be borrowed by local agencies. Washington Traffic Safety Commission has scholarships that can be used for the purchase of these tapes. Call T^2 Center for further information (360) 705-7386.

Brief (One- to ten-page) Handouts

___ Asphalt Pavement Recycling, Crommes, Montague, 1993

___ Eye and Face Protection: Safety Goggles, Parlay, 1991

___ Individual Productivity – Understanding What Makes It Happen, Crommes, 1994

___ Know the Dangers of Confined Spaces, Parlay, 1991

___ Mitigating Road Hazards, Crommes, 1991

___ Operator Daily Maintenance of Motor Graders, Adapted from LAT^2 Center, 1989

___ Roadway Safety: Where Does it Rank on Your List of Priorities?, Penn T^2, 1992

___ Standing on Your Own Two Feet: And Other Reasons to Use Foot Protection, Parlay, 1991

___ Tips for Reducing Tort Liability (articles from various sources), 1992

___ How to Coach a Winning Team, Louisiana State University

___ Depression is Serious Business, Parlay, 1991

___ Do You Communicate When You Talk?, NACE and LAT^2 Center

___ Standing By at a Confined Space, Parlay, 1991

___ The Ten Commandments of Political Engineering, CAT^2 Center, 1992

___ HITEC (Highway Innovative Technology Evaluation Center) Brochure, 1996

___ Pavement Recycling (Brochure), FHWA, 1997

Orders may be faxed, mailed, or phoned to Laurel Gray
Phone: (360) 705-7386,
Fax: (360) 705-6858
Mailing Address: NWT^2 Center,
WSDOT/TransAid, P.O. Box 47390,
Olympia, WA 98504-7390

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Since the DMI is nothing more than a glorified odometer, the SRview software is able to grab the image the camera sees at the precise moment that the DMI "turns over." SRview compresses that image, gives it a file name, stores it on the hard drive, clears the computer's memory and waits to grab the next image — 52.8 feet down the road.

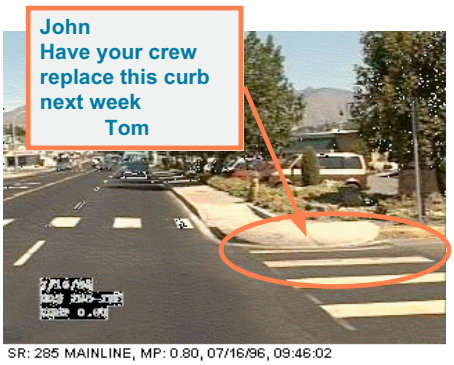
Traveling at roughly 40 mph, SRview must capture and process an image every 0.9 seconds. At the end of each taping day, the image files are downloaded from the hard drive and stored on a standard compact disk, or CD.

Each CD can hold roughly 50,000 images captured at the 52.8 foot interval. These 50,000 images represent 500 miles of roadway. The reception of SRview by various and diverse work groups has been extremely positive and has really stirred peoples' imaginations. Because of that, numerous unanticipated, potential applications — based on the product's capabilities — have surfaced.

For example, local agencies could use SRview for documenting public works projects, scheduling and completing maintenance activities, design visualization, documenting bus and evacuation routes, and for sign inventory.

Project Documentation

Job Scheduling



SR: 285 MAINLINE, MP: 0.80, 07/16/96, 09:46:02

Needed from local agencies are more ideas for other potential applications. CRAB (the County Road Administration Board) is interested in SRview for general local agency applications, and FHWA is interested for Damage Assessment purposes. SRview has drastically reduced WSDOT's sole reliance on videotapes and has made these very valuable images available to anyone with a CD drive.

What's Going On Now

Some of your peers have already identified local applications and pilot projects that would be greatly enhanced by SRview. For example, the cities of Camas and Pasco are interested in relating GPS coordinates to actual street images. A pilot project to accomplish exactly that has already been successfully completed by Anacortes. I think the folks in Anacortes would agree that a picture is worth a thousand words. The GPS equipment used on the Anacortes job was borrowed from Thurston County's Chief Surveyor, Les Olsen. Besides the equipment, Les also lent us his technical expertise, time and insights.

Olympia wants to utilize SRview in providing images of the inside of their sewer lines. Lacey is interested in a sign inventory that is based on a visual record. Okanogan County expressed a need to tie SRview images to the 911 emergency system. The same idea has surfaced in Whitman County.

Other potential applications where a visual record could prove invaluable are vegetation management, pavement evaluation, and risk management.

What application ideas do you have? Do you find SRview intriguing?

If the answer to either or both of these questions yes then contact me, Hans Cregg, to share your thoughts or schedule a SRview presentation.

Phone (360) 705-7385
Fax (360) 705-6858
E-mail: Hcregg@WSDOT.WA.GOV
E-mail: Hcregg@AOL.COM

Opportunities to Enhance Your Skills

For more information, contact the training provider listed. For additional training needs contact the Northwest T² Center at (360) 705-7477 or 1-800-973-4496.

Classes and Workshops

NWT² Center, WSDOT
(360) 705-7386, Fax (360) 705-6858
http://www.wsdot.wa.gov
(Click on TransAid, then on T².)

T² Roadshows

Fall roadshows began in August. George McHaney will be the roadshow trainer. Contact George after August 1 at (360) 705-7385, or call early to the Center at (360) 705-7386.

Video for Traffic Management. September 25-26, Tacoma area. Free. 2 days.

Stream Stability and Scour at Highway Bridges. September 30-October 2, Kent. $125. 3 days.

Look for the following NHI classes to be coming this fall/winter.

- **Rockfall Hazard Mitigation.** Two sessions, Vancouver and Tacoma.
- **Portland Cement Concrete Materials.** One session, Olympia/Tacoma area.
- **Improved Highway Travel Considerations for an Aging Population.** Two sessions, Olympia and Seattle.

WSDOT Environmental Affairs Office
Contact Jim Sundahl at (360) 705-7483
http://www.wsdot.wa.gov
(Click on Environmental Affairs Office, then on training.)

Fundamentals and Abatement of Highway Noise. September 9-12, Kent. $250. 3.5 days. To register for this class, please contact Laurel Gray in the T² office

National Transit Institute
(908) 932-1700, ext. 19
Contact Susan Greenstone

Public Involvement in Transportation Decision Making. September 10-12, Seattle. Free.

Transit Safety Institute
(405) 954-3682
Contact Marge Carr

Transit Industrial Safety Management. August 4-8, Seattle. Free.

Transit System Security. September 22-26, Richland. Free.

OSHA Training Center
(800) 326-7568, Fax (206) 685-3872

Machinery and Machine Guarding Standards. August 18-21, Portland, Oregon. Prerequisites: Completion of one of the following OSHA courses: 200A, 501, or 510. $525.

University of Washington Engineering Professional Programs
(206) 543-5539
http://www.engr.washington.edu/~uw-epp/

Basics of Project Management for Design Professionals. September 9, 11, and 16. $180 (early registration), $205.

Recent Advances in Municipal Wastewater Treatment: Doing More With Less. September 17 and 18. $325 (early registration), $355.

Effective Writing for Technical Professionals. September 18, 23, 25, 30 and October 2. $300 (early registration), $330.

Alternative On-Site Stormwater Management Techniques. September 23 and 24.$315 (early registration), $345.

Seismic Hazard Analysis for Constructed Facility Sites. October 24 and 25. $315 (early registration), $345.

Specifications and Construction Techniques for Stream and Wetlands Projects. November 5 and 6. $315 (early registration), $345.

Stormwater Treatment by Media Filtration. December 11 and 12. $315 (early registration), $345.

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Fundamentals of Urban Surface Water Management. January 14-15, 1998 (tentative).

Site Specific Liquefaction Analysis. January 14-15, 1998 (tentative).

TRANSPEED-UW
Call Keir Whitson
(206) 616-9094
http://www.engr.washington.edu/~uw-epp/Transpeed/trans.html

Roadway Geometric Design. September 9-11, Seattle. $180.

Legal Liability for Transportation Professionals. September 15-16, Seattle. $150.

Hydrology and Basic Hydraulics. September 17-18, Seattle. $150.

Traffic Calming: Techniques and Management. June 19-20, Spokane; September 25-26; Vancouver. $150.

GIS Applications in Transportation. September 30-October 2, Seattle. $180 plus $95 lab fee.

Managing Project Delivery. October 1-3, Seattle. $150.

Public Works Construction Project Management. October 9-10, Seattle. $150, plus $30 lab fee.

Construction Inspection of Public Works Projects. October 29-30, Seattle. $150.

Roadway Value Engineering. November 12-14, Seattle. $180.

Basic Highway Capacity Analysis. December 9-11, Lacey. $180.

Roadway Culvert Hydraulic Design. October 23-24, Vancouver. $150.

Applied Highway Economics. November 20-21, Seattle. $150.

ASCE
1-800-548-2723
http://www.asce.org/

ACE offers several self-study courses on both audiotape and videotape. Some courses award CEUs. A partial listing of available courses:

- Excavation Safety
- Geosynthetics in Transportation Applications
- Wetlands and 404 Permitting

Data-Tech Institute
(201) 478-5400

Advanced PC Troubleshooting and Upgrading Techniques. August 27-28, Seattle. $995.

MENG
(206) 5787-3797

Value Analysis/Value Engineering. August 13, Seattle; September 15, Portland, Oregon. $180. 1 day.

Life cycle Cost and Risk Analysis. December 8, Portland, Oregon. $95. Half day.

Value Engineering-MODULE I Training Program. January 19-22, 1998, Seattle. $850. 4 days.

WSU
Conferences and Institutes
1-800-942-4978

Telecommunications Infrastructure Planning. January 6-8, 1998, Seattle.

Washington State Department of Personnel (DOP)
(360) 586-2720

Classes are open to state and local agency personnel based upon spaces available. Some courses have a "charge back fee." Other classes are offered in Tri-Cities, Vancouver, Walla Walla, Wenatchee, and Yakima. Contact DOP for their latest catalog.

Presentation Skills. August 11-13, Olympia.

Entry Management Development Core Program-Phase 1. June 2-5, Olympia; June 16-19, Spokane.

Disability Awareness Workshop. August 13, Olympia.

Basic Interpersonal communication Skills. August 18-19, Olympia.

Writing Skills. August 21-22, Olympia.

Managing Job Stress. August 21-22, Olympia.

Advanced Clerical Effectiveness. August 28-29, Olympia.

Evergreen Safety Council
(206) 382-4090
1-800-521-0778
Fax (206) 382-0878
http://www.esc.org/

Lift truck Instructor Certification. August 11-15, Seattle.

Understanding Federal OSHA and State Regulations. August 14, Seattle.

Presentation Skills. August 20, Seattle.

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Computer Programs

The following computer programs may be downloaded from the Internet at http://www.wsdot.wa.gov/transaid

Design Cost Estimate. A software database program that calculates cost projections based on standard items.

Materials Approval Tracking. A software program designed to track materials data, need, status, and approval of any materials sampling and documentation needed for approval.

HyperCalc. A shareware utility for converting between metric and English units.

Force Account Macros. A series of ready-made Excel spreadsheets and macros to save you time on daily force account calculations and reports, including wage and equipment rates.

APWA CAD Symbol Standards and Menus. A public domain program of standard AutoCAD symbols developed by the Washington Chapter of APWA for use with AutoCAD release 12.

Conferences and Meetings

ASCE Airfield Pavement Conference. August 17-20, Seattle, 1-800-548-2723.

Washington City/County Management Association Summer Conference. August 19-22, Chelan, (206) 625-1300.

APWA International Public Works Congress and Exposition. September 13-17, Minneapolis, Minnesota, (816) 472-6100.

International City/County Management Association (ICMA) Annual Conference. September 14-17, Vancouver, B.C.

Pedestrian and Bicycle Safety Conference. September 18-20, (206) 224-9252.

ASCE Annual Convention. October 5-9, Minneapolis, Minnesota (1-800-548-2723).

1997 Western Bridge Engineers' Seminar. October 6-8, Coeur d' Alene, Idaho. Contact Jean Canfield (360) 943-7732.

Road and Street Maintenance Supervisors' School-East. October 7-9, Spokane.

Governor's Industrial Safety and Health Conference. October 30, 31, 1997, Seattle Center. Contact Department of Labor and Industries (360) 902-5446.

APWA Fall Conference (joint with Oregon). October 21-24, Red Lion, Columbia River, Portland, Oregon.

Idaho Asphalt Conference. October 23, 1997, University Inn-Best Western, Moscow, Idaho. To register call UI at 1-888-884-3246.

Northwest Pavement Managers Association Conference. October 28-30, Yakima.

US Hot Mix Asphalt Conference and Superpave Workshop. October 29, 31. Phoenix, Arizona, (888) 468-6499.

WSAC Legislative Conference. November 12-14, Everett, (360) 753-1886.

AASHTO Annual Meeting. November 14-18, Salt Lake City, Utah, (202) 624-5800.

Road and Street Maintenance Supervisors' School-West. December 3-5, Bellevue, 1-800-942-4978.

TRB 77th Annual Meeting. January 11-15, 1998, Washington, D.C., (202) 334-2934.

Northwest Transportation Conference. February 4-6, 1998. Oregon State University, Corvallis, Oregon.

1998 Road Builders Clinic. March 10-12, 1998.

Conference on Transportation, Land Use, and Air Quality. May 17-20, 1998, Portland, Oregon, 1-800-548-2723.

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The Technology Transfer Center (T2) Program is a nationwide effort financed jointly by the Federal Highway Administration (FHWA) and individual state departments of transportation. Its purpose is to translate into understandable terms the latest state-of-the-art technologies in the areas of roads, bridges, and public transportation to local highway and transportation personnel.

Any opinions, findings, conclusions, or recommendations presented in this newsletter are those of the authors and do not necessarily reflect the views of WSDOT or FHWA. All references to proprietary items in this publication are not endorsements of any company or product.

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TransAid Service Center

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Federal Highway Administration

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